DOCUMENT RESUME

ED 328 739 CE 056 922

AUTHOR Johanson, Richard K.
TITLE Responding to Diverse Needs of Changing Economies.
PUB DATE 1 Dec 90
NOTE 16p.; Paper presented at the Annual Meeting of the International Vocational Education and Training Association (Cincinnati, OH, December 1, 1990).
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (Opinion/Position Papers, Essays, etc.) (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Change Strategies; Developed Nations; *Developing Nations; *Economic Development; *Educational Change; *Educational Improvement; *Nonformal Education; Nontraditional Education; Postsecondary Education; Relevance (Education); Secondary Education; *Vocational Education
IDENTIFIERS *International Labour Office

ABSTRACT

Among the most important needs of changing economies is the need to respond to technological changes, economic restructuring, and labor market changes. Although formal vocational training schools do not usually respond well to changing economic circumstances, nonformal and proprietary or private institutions usually are highly responsive to the economy and labor market. Public vocational training should become more responsive to changes; five suggestions are given that could help the system respond. Some issues still to be resolved about the role of public vocational education include the following: How can the public sector promote training within enterprises? How can mass retraining be made effective? What role can training play in channeling women into nontraditional occupations? Should proprietary training be directed and controlled? What can existing training institutions offer to the informal sector in developing countries? and How should traditional apprenticeship be encouraged? The International Labour Office can play a role in helping vocational education systems to become more responsive through its some 140 projects throughout the world in subjects such as instructor training, development of modular training, and development of apprenticeship and by providing advice on retraining, management development, and entrepreneurship. (KC)

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ED328739

IVETA

Cincinnati, Ohio, 1 December 1990

"Responding to Diverse Needs of Changing Economies"

Presentation by Richard K. Johanson,
Chief, Vocational Training Branch,
ILO, Geneva

Introduction

I have been asked to speak on the Program Theme, "Responding to Diverse Needs of Changing Economies". In thinking about this theme I have decided to divide it into several questions, as follows:

1. What are the diverse needs of changing economies?
2. How responsive are the various modes of training provision?
3. How can responsiveness be built into VET systems?
4. What issues are unresolved in this area?
5. What is the ILO's role in helping VET systems become more responsive?

In approaching the subject, I am highly aware of the difficulty of aggregation such a broad and complex field. VET systems are so diverse as to defy any simple characterisation. Clearly, I run the risk of the fallacy of generalisation. However, I am heartened by the words of Charles Benson, who once said "Anything you can say about vocational training is true." In this spirit, even the generalisations I am about to make may be true.

I. What are the Diverse Needs of Changing Economies?

Three of the most important needs of changing economies are the need to respond to technological changes, economic restructuring and to labour market changes.

A. Technological Changes

The proliferation of advanced technology has altered the pattern of demand for labour in both industrialised and developing countries. New technology changes both occupations and skills. First, some occupations are likely to be in high demand; others will gradually disappear and new types of skills will emerge. Second, the degree of proficiency needed for certain types of skills is also changing.

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This can be illustrated by the changing job content in electro-mechanical occupations in Germany and its implications for training. As shown in Figure 1, 35 years ago the training content in this field was two thirds mechanical and one-third electro-mechanical. By the start of the 1980s, to account for the introduction of computer-run or assisted production, this had changed to approximately one fourth mechanical, one fourth electro mechanical, one fourth electronics and one fourth informatics. The latter two fields were only introduced between 1965 and 1975. Similarly, there has been a change in the proportion of cognitive skills in relation to manual skills, as shown in Figure 2. It is clear that the present shift from manual skills to cognitive skills will continue.. A side effect of technological progress has been a reduction in the employment of manually skilled production workers in most industrialised countries and an upgrading of the skills of those who remain.

Take maintenance, for example: With advanced automation, maintenance has become relatively more important than operating the equipment. Since diagnosis is the most difficult part of maintenance, a good understanding of the entire machine is necessary. A machine that includes electro-mechanical, hydraulic, pneumatic and electronic parts needs maintenance crews that have a sufficient grasp of each of these fields. This calls for "multi-skilling". Moreover, a feature of advanced technology is not so much that it uses modern technology, but that this technology is changing all the time, thereby requiring continuous learning and upgrading. An electronics engineer may need up to 300 hours per year of further training to keep abreast with developments

B. Economic Restructuring

The pattern of demand for manpower is also being influenced by the restructuring the economies of many countries. Two types of restructuring can be identified. First, there is the discernible longer-term trend of growth of the services sector in most countries. Second, the relative rates of growth of subsector activities are also changing. Thus, in many countries there has been a shift in the order of importance of certain industries within the industrial sector. This has come about as the result of globalisation of markets, declining competitiveness, or in response to concerted economic policy, such as in Eastern Europe, which is shifting productive capacity from heavy to light industry and to food and consumer goods production.

The training problems posed by restructuring are formidable. The decline of coal mining and ship-building in Eastern Europe, for example, can only be remedied by schemes that include retraining the displaced workers for new occupations. ILO estimates that 500,000 workers in Bulgaria will need to be trained to find new occupations in the next few years, as well as 2 million workers in Poland and more than 6 million workers in the Soviet Union. Retraining inevitably will be an important part of moving workers from occupations in surplus to those in demand. However, experience shows that traditional training courses have not performed well in this respect. The need exists for a combination of counselling and retraining geared to identifiable job opportunities.

C. Labour Market Dynamics

A combination of rapid population increase, coupled with slow growth in modern sector employment, means that many developing countries cannot generate enough wage jobs to absorb the burgeoning new entrants to the labour market

each year. This is one of the most serious problems faced in Africa and parts of South Asia. The number of entrants to the labour market today in most sub-Sahara African countries far exceeds the number of new jobs generated by the economy. Diagram 3 illustrates the problem with orders of magnitude. In general, with the assumptions made, there will be an average of seven job seekers for each new wage job created annually. Another way to look at the mismatch is to compare the number of school leavers from the various levels with the creation of new wage employment. Let us take Zambia, an extreme case, as an example. Between mid-1970 and mid-1980 the number of school leavers who entered the labour market increased by 36% to about 160,000 per year. Over the same period formal sector employment, that is wage employment, actually decreased by 5% to a total of 360,000. Even if wage employment resumed growth at the rate of 5% per year, which is almost impossible, it would still only generate 18,000 jobs each year compared with 160,000 job seekers, a ratio of 9 job seekers per job.

What happens if there are not enough wage jobs to go around? There are only three alternatives: 1) be unemployed, which for most people cannot go on indefinitely, 2) take a job in subsistence agriculture or in the urban informal sector, or 3) create a new job for oneself. The role of training cannot be overlooked in face of this massive problem. The issue for vocational training in Africa, in my opinion is the following: what should training be like when there are not enough wage jobs to go around? At present, most vocational training institutions in Africa, built during the heyday of industrialisation, prepare people for formal wage employment, that is, for at most one tenth of the labour force. What about the other 90%?

II. How Responsive are the Various Modes of Training Provision?

A. Training Provision

It would be useful, first, to take a look at the various sources of vocational training. As shown in Figure 4, essentially there are three sources of training: publicly provided training, enterprise-based training and proprietary or private training. Within the public realm, there are perhaps four sources of training: schools as part of the formal education system, generally under ministries of education; non-formal training institutes, under ministries of labour or national training authorities; training done by other government ministries and training by para-statal companies.

Most of the training that actually takes place is "invisible." By that I mean: we usually regard vocational training as only that which goes on in schools or dedicated institutes. This may, in fact, be the smallest part of what goes on within government alone. We tend to ignore that which is difficult to measure, such as training by other government ministries, training within enterprises and training within private institutions. This is what is called the "invisible training world". The point I wish to make here is that most of what goes on within this "invisible training world" is in fact highly responsive to changing economic needs.

B. Responsiveness by Type of VET

1. Formal vocational training schools under ministries of education typically do not respond well to changing economic circumstances. I know what you are probably thinking now. You are thinking of places like Korea where

skill training sponsored by education ministries works exceptionally well. Yes, you are right. But the reason it works well probably has less to do with its sponsorship than with the countries themselves: everything works exceptionally well in Korea. There are exceptions, of course, but in general formal vocational schools have had trouble matching their programmes to labour market demands. Public schools, unlike non-formal institutions, are purposely insulated from market forces to keep them from being affected by rapid changes so that can preserve and pass on the dominant culture. The incentives that drive them flow not from markets where their graduates are evaluated, but from financial support they get through the public bureaucracies. This lack of direct connection to output markets makes it difficult for formal institutions to anticipate or sense changes in labour market demand, and their bureaucratic structure limits their ability to change programmes once a new demand has been successfully expressed. The problem with formal vocational training schools is that they do not receive forceful, hard-to-ignore, signals from their graduates or from employers. Thus, it is not surprising that countries such as China, India and Indonesia have reported difficulty in structuring the public vocational schools to respond to changing demand.

2. Non-formal institutions: public training institutes that lie outside the formal schools - (typically vocational training centres often under ministries of labour or national training agencies) have been shown to be able to provide cost-effective training in a rapidly shifting labour market. They are separated from academic schools, thereby sheltering training from prejudices against manual occupations and the attractions of higher education; they can operate quite close to the labour market; they can offer a variety of courses responding to needs; and they can train people in a relatively shorter period of time. On the other hand, these institutions can have problems that impede their responsiveness - particularly when well financed, they can grow top-heavy bureaucracies, and they also tend to keep putting out the same kind of training regardless of what is happening in the job market.

3. Proprietary or Private Training tends to be highly responsive to the economy and labour market. Figure 5 contrasts the ways in which spending priorities are set in private and public institutions. In effect, the budgets of private insitutions are typically determined by how well the graduates are absorbed in appropriate employment and how labour market demands change. In contrast public institutions tend to have only weak links with the labour market; budgets are based largely on previous years' spending.

This contrasting incentive structure leads to certain characteristics in proprietary institutions, such as:

- -single purpose
- -short courses*
- -low capital investment
- -emphasis on teaching with frequent performance evaluations.
- -flexible curricula
- -emphasis on job placement
- -low staff requirements
- -efforts to substitute less costly means of teaching

(* recognising that one of the most important costs of training to the individual is foregone income)

The advantages of proprietary vocational training are that it:

1. expands overall training capabilities;
2. reduces the financial burden on public resources;
3. responds to changes in the labour market; and
4. creates competition, alternatives to public offerings.

Results of research in the USA, (Wilms 1990) show that proprietary vocational training institutions enroll more than public institutions; retention rates of students are 50% higher than public institutions of similar type; placement rates and earnings of graduates are about the same as that of public institutions, but are achieved in half the training time on average; private institutions are more flexible, tending to add and drop courses about half again as often as their public counterparts.

However, proprietary training also has its disadvantages. Students often with the least ability to pay have to pay for the private training. Quality is sometimes appallingly low. There are many examples of outright fraud and private skill training rarely is given in fields that require heavy capital investment.

4. Enterprise-based Training tends to be even more responsive to economic changes than other types of training. This should not be surprising. To the extent that firms need training, they are the first to become aware of the fact. Second, firms do not offer training they do not need. Third, the training given gives an immediate payback so that, potentially at least, there is built-in quality control. This should be an almost fool-proof solution.

The advantages of enterprise-based training also apply to apprenticeship. Three centuries ago, there were only religious schools and the apprenticeship controlled by the guilds. For the vast majority of youth, the only chance of gaining skill knowledge and an occupation was to study with someone. This could be a casual process of watching, imitating and unstructured tutoring. The European guilds, which date from the Middle Ages, began to give more structure and substance to this learning. They established thresholds of competence the apprentices must reach and strict requirements for becoming a journeyman and then a master. Under this system, the apprentice offered his labour to the master craftsman in exchange for a small wage and on-the-job learning.

Apprenticeship - whether more or less structured - has survived for centuries. In the industrialised countries, it has taken all possible paths. At its simplest - it remains the predominant method of skill acquisition - "sitting by Nellie". In its most sophisticated versions, it has become a complex and structured system, as in Germany, the so-called "dual system". Since it has direct links with the needs of the labour market, the apprenticeship system has proved quite efficient at transferring skills especially when technology is stable or changing slowly. Apprenticeship's strongest side is its practical orientation. The other side of the coin, is that the system chronically neglects theory. This slows down the adaptation of workers to new job requirements under conditions of rapid technical advance. It also limits the skills in areas where conceptual mastery is required.

Apprenticehip also exists in the informal sector in developing countries, often with structures that closely resemble those associated with the European guilds. In many places, it constitutes the bulk, if not the only,

training offered since institution-based training may be marginal or non-existent. An ILO study of French-speaking African countries showed that 84% of employees had received traditional apprenticehip training against 7% modern apprenticehip and just 2% in vocational training institutes.

Traditional apprenticeship can be highly effective. It costs next to nothing yet, in many cases, compares favourably to formal training. The ILO found in Côte d'Ivoire that jewellers and carpenters trained by the informal sector had more complete training, more practice and better customer contact than their formally trained counterparts.

Enterprise-based training and apprenticeship both can have disadvantages, especially in countries at early stages of development. There may not be enough enterprises to be able to give training. In-service training can be too narrowly focussed. Some firms will not train staff for fear of loosing them to other enterprises. Individual firms look for their individual payoffs, but the needs of individual firms are not the same as the needs of industry or the economy. Often, only big firms can afford training. The financial resources, administrative effort and the technical expertise to offer training are beyond the means of average-sized firms in developing countries. Thus, in many developing countries, firms lack the experience, skills and even interest to provide properly structured training, and traditional apprenticeship often turns into exploitation of cheap labour.

Of course, since firms are more reluctant to pay for training than to hire well-trained workers, the classical solution has been to shift the training to the public sector. This puts us right back where we started, namely the lackluster performance of state operated training in response to markets.

III. How can Effectiveness be Built into Public VET

The thrust of training policy should be to encourage private and enterprise based training as much as possible because of its responsiveness to changing labour market demands and the financial relief it affords the public sector in times of stringency. However, it would be unrealistic to think that all or most training is ever going to be undertaken by the private sector; public provision of vocational training is inevitable. It happens in all countries, no matter how free-market oriented the may be. The question, therefore, is not whether there should be public provision of vocational training, but rather how can it be made as responsive as possible to the diverse needs of changing economies. I would like to mention five things that can be done to build responsiveness in public VET.

1. The first thing to do is strive for "trainability" through the system of general education. In most countries, developed and developing alike, only a minority of those entering subprofessional occupations require significant pre-employment training. The great majority will acquire such skills as they need in-service. The greatest part of the task of schools is to anticipate and facilitate this process by developing trainability. Trainability is, of course, a broad concept which means different things in different contexts but is likely to encompass some or all of the following traits:

-development of cognitive ability: reasoning skills and numeracy

-development of scientific attitudes in a broad sense

-mastery of the national language

-development of communication skills

-development of interpersonal skills

-development of self-discipline and responsibility

To this list could be added: attitudes to work and basic understanding of technology.

The first task of the educational system is to provide as good a general education as can be achieved and that this is all that is required for the great majority of students. As Chris Dougherty from the London School of Economics has pointed out: "The notion that all, or even most, students need an "employable skill" if they are to enter the labour force successfully is pure fantasy, and the associated notion that macro unemployment of school leavers can be alleviated by providing them with employable skills is just wishful thinking." In other terms, literacy and numeracy are probably the best vocational skills one can acquire. Good maths and science may be the second most important vocational skills in view of technological and structural changes. The corollary is to defer vocational specialisation as long as possible, until on the job or immediately prior to employment.

2. The second thing that needs to be done to make public vocational training more responsive is to link it better to the labour market and that means to employers. Ultimately, employers are the ones who decide on hiring. They have the last word on what the market wants. This is not to say that they are necessarily wise in their decisions or that the pressures they may exert on training systems are always welcome or pertinent. The point is that it makes no sense to train people with profiles that are going to be rejected by employers.

This idea is neither new nor original. The problem is how to do it. The most obvious way is to have training under the control of a board in which employers are present and decisive. Most training systems are governed by councils or boards. In theory, the wishes of employers are given a fair chance and cannot be ignored. In practice, however, many boards are too large to be functional; employers may have only token representation. The agendas are often overcrowded with formal routines. The boards tend to lack real power to veto budgets, to vote funds or to change critical rules and regulations. In the long run, weak boards end up with weak represenatives.

Not that all boards are ineffective. Training systems operated by trade chambers or associations of employers tend to respond much better to firms demand. Good examples are the Brazilian SENAI AND SENAC which are formally linked to the Ministry of Labour but in reality are controlled by employers organisations. They may have other sins, but on speed of adjustment they are better off.

3. In the final analysis, perhaps the best way to reduce the distance between training institution and clients is to decentralise and delegate power to the local institutions and hold them accountable for results. Quantity and

quality of training must be something that can be altered inside the schools. This, of course, requires the proper framework. If training policies and the mechanisms for their monitoring and adjustment are in place, then a framework exists in which decentralisation can operate effectively. Decentralising is a decision of a tall order, involving many politically sensitive points. It may also have equity drawbacks. Yet, there seems to be no better way of achieving a self-correcting mechanism to realign supply and demand of training.

4. Fourth, to the extent possible, make the beneficiaries of training pay for vocational training. This is the "market test". Individuals, households or firms will not continue to pay for training that is misdirected or wasteful, be it through payroll taxes or individual tuition. This is a powerful way to ensure self-correcting mechanisms in training.

5. The preceding steps relate largely to the modern formal sector of the economy. Let us talk for a moment about the informal sector. Just because one is dealing with the informal sector does not change the general idea that training has to respond to demand from the productive sector. Yet, it is a far different demand, in effect, a demand for self employment for jobs not yet created. Enterprises are very small and thus far not represented by collective bodies. In many cases self-employment is the major form of economic organisation. Clearly, strategies for creating incentives for training institutions to respond to their demand tend to be quite different.

The fifth thing to do is train people to become self-employed or increase their incomes in the informal sector. The danger,here, however, is that informal sector training would be organised for its own sake without much regard to the actual possibilities for gainful employment in the informal sector. A second risk is that training for entrepreneurship or self-employment be carried out on its own, which is ineffective. Training has to be combined with credit facilities, with advice on the feasiblity and management of the intended venture and with the necessary infrastructure.

IV. What issues are Unresolved

1. How can the Public Sector Promote Training within Enterprises? The issue is how to stimulate enterprises to do their own training without over-regulating it. Many means are known, such as, tax rebates for training and public training of trainers. Yet, more study is needed to identify the range of effective options.

2. How can Mass Retraining Schemes be made Effective? Massive training of workers is clearly needed to move people from occupations in surplus to those in demand. However, no retraining programmes have even been organised on the scale as now required in Eastern Europe and the Soviet Union, and the experience with smaller retraining programmes has often been disappointing.

3. What role can training play in channelling women into non-traditional occupations? In most developing countries, female participation in the labour force is still confined largely to a range of occupations with lower levels of skill, responsibility and pay. Training and vocational guidance are crucial for women since they determine to a great extent the possibilities of access to better occupations. Yet, few women enter vocational training, and those who do are segregated by type of course. This constitutes a powerful screening device for sorting men and women into different types of employment.

4. Should Proprietary Training be Directed and Controlled and, if so How?. The issue is how can the abuses of private training be avoided without destroying incentives. What incentives are needed and possible to get private institutions going in the proper direction and how can they be regulated without stifling initiative. It is exceptionally difficult for governments to deal with the fragmentation and heterogeneity of private training institutions.

5. What can existing training institutions offer to the informal sector in developing countries? Many developing countries have well-established training institutions that have acquired considerable competence in training for the modern sector. They were neither designed to operate in the informal sector, nor do they display much eagerness to move in this direction. NGOs and grass-roots movements are becoming increasingly active in the informal sector. But NGOs typically have little, if any, competence in training. How can their interest to operate in the informal sector be combined with the technical competence of the established training institutions?

6. How Should Traditional Apprenticeship be Encouraged? As stated earlier, traditional apprenticeship has been a good, and often the only, source of trained labourers in developing countries. The issue is not whether, but how to encourage it. What kinds of policies would protect apprentices from exploitation, improve the quality of training and encourage its expansion. The many attempts to regulate the system have often been counterproductive resulting in the craftsman abandoning the practice of taking on apprentices.

V. What is the ILO's Role in Helping VET Systems Become More Responsive?

1. The Vocational Training Branch of the ILO is currently executing some 140 projects worth over US$ 110 million in 75 countries of the world. Half the projects are in Africa, about a third in Asia with the rest divided among the Americas and the Middle East/Europe. About 80% of the projects are financed by the UNDP, 15% by bi-lateral donors and 5% by development banks.

2. These projects have typically been in such areas as instructor training, development of apprenticeship systems, development of modular training and establishment of standards and certification systems. Now, however, much more emphasis is being placed on specific target areas such as rural training and women's training. At the system or institutional level the ILO is emphasising policy analysis, system and institutional management, and labour market information systems.

3. In Europe the ILO is being increasingly asked for advice on worker retraining and especially in the area of management training. In Africa, the priority is training for self-employment in rural areas. The ILO has developed a successful approach in this area called Skills Development for Self Reliance on which I reported to you last year. This approach places training in a context of market analysis at the community level, carefully selects potential entrepreneurs, trains in business skills as well as product production, provides access to credit and follows through with in-service business advice.

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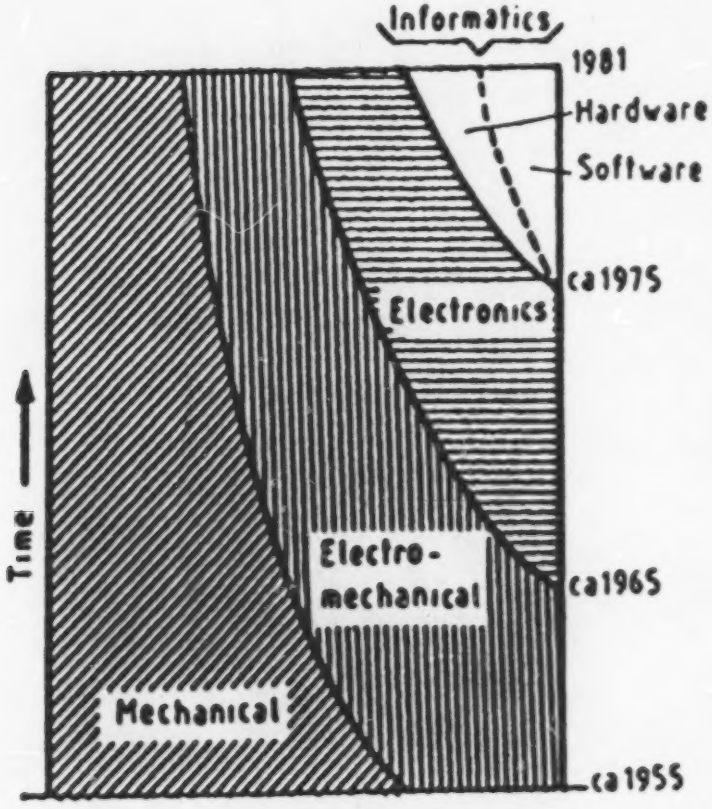
Figure 1

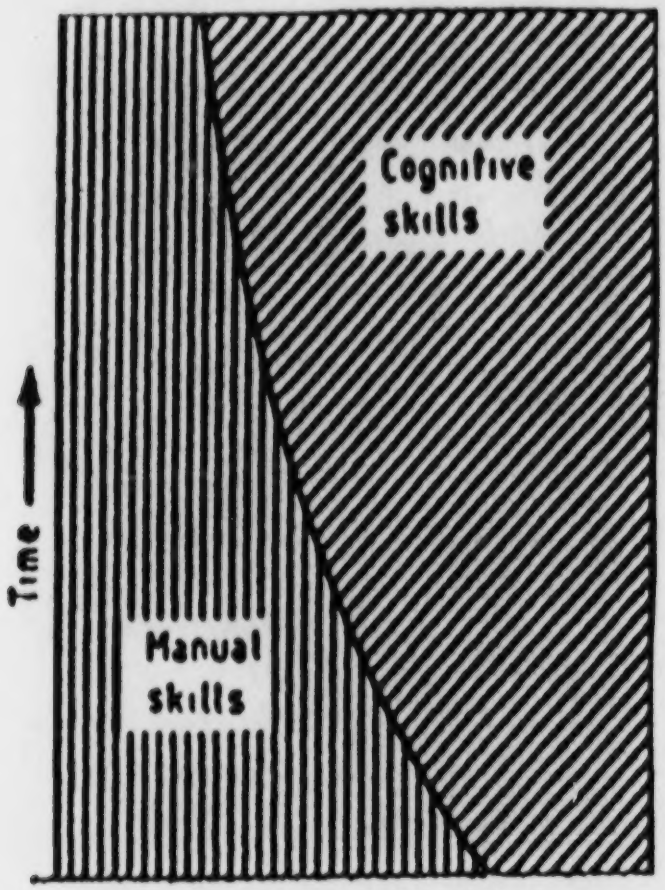
Training Content in Electro-Mechanical Occupations



Source: ILO, 1983 Eleventh Session of the Metal Trades Committee

Figure 2

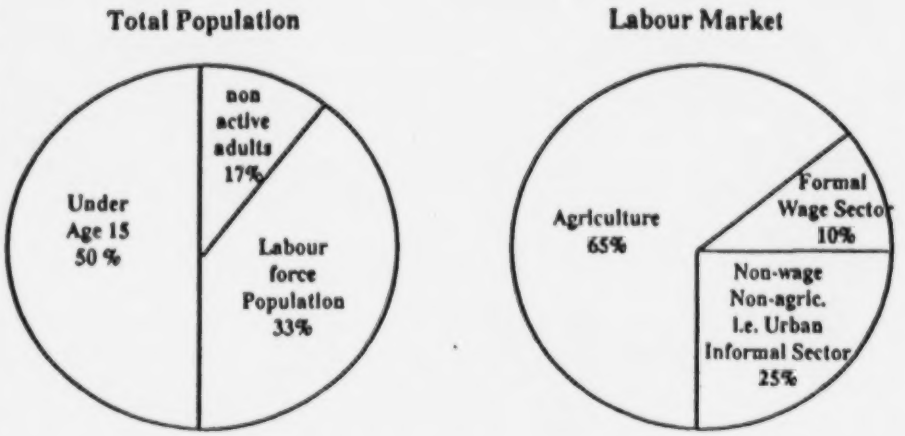
Proportion of Manual Skills to Cognitive Skills in Training for Electro-Mechanical Occupations



Source: ILO, 1983 Eleventh Session of the Metal Trades Committee

TYPICAL AFRICAN CASE

Diagram 3a



DYNAMICS OF THE AFRICAN LABOUR MARKET

Diagram 3b

Population, say 100,000
(33%) Labour Force 33,000
3.5% growth p.a. = 1,155 new jobs needed

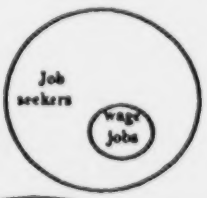
Ratio : $\frac{1{,}155 \text{ Entrants}}{165 \text{ Jobs}} = \frac{7}{1}$

Wage Employment 10% * 33% = 3.3% (3,300)
Growth p.a. (165 new jobs generated)

AFRICAN EXAMPLES

Diagram 3c

Kenya $\frac{400{,}000 \text{ Entrants}}{60{,}000 \text{ Jobs}} = \frac{6.7}{1}$



Burkina Faso $\frac{66{,}000 \text{ Entrants}}{2{,}500 \text{ Jobs}} = \frac{26.4}{1}$

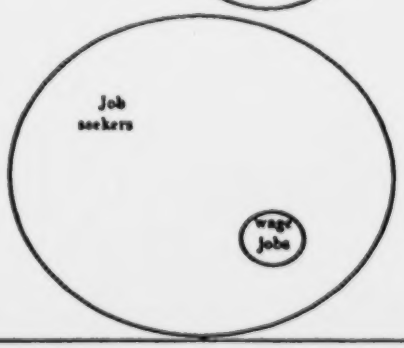
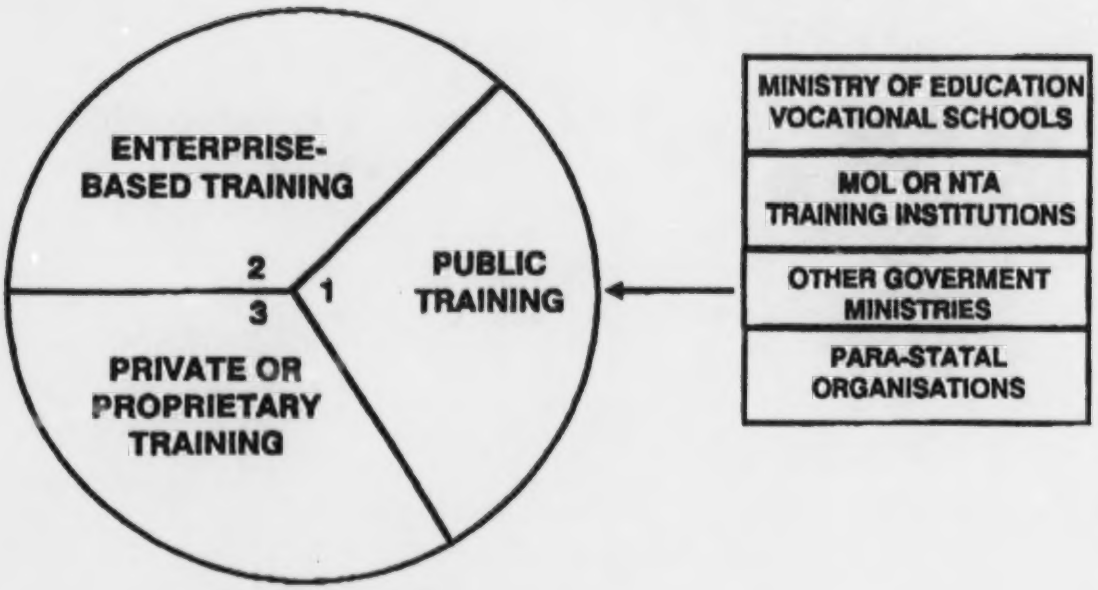


FIGURE 4


ENTERPRISE-
BASED TRAINING
2
1
PUBLIC
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3
PRIVATE OR
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TRAINING
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OTHER GOVERMENT
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ORGANISATIONS

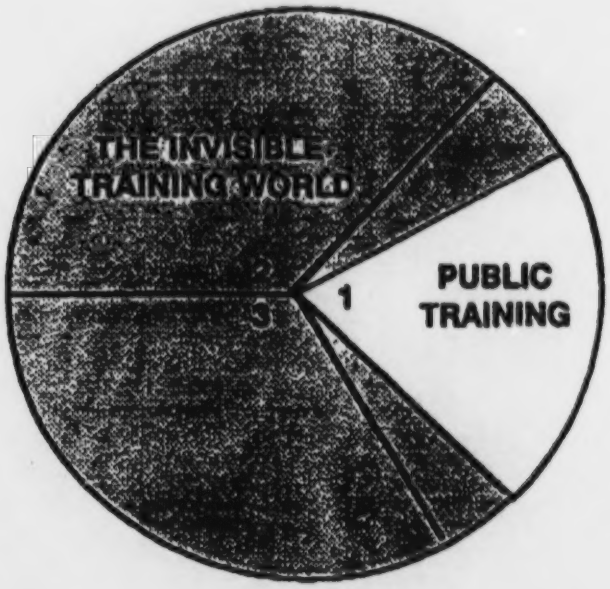
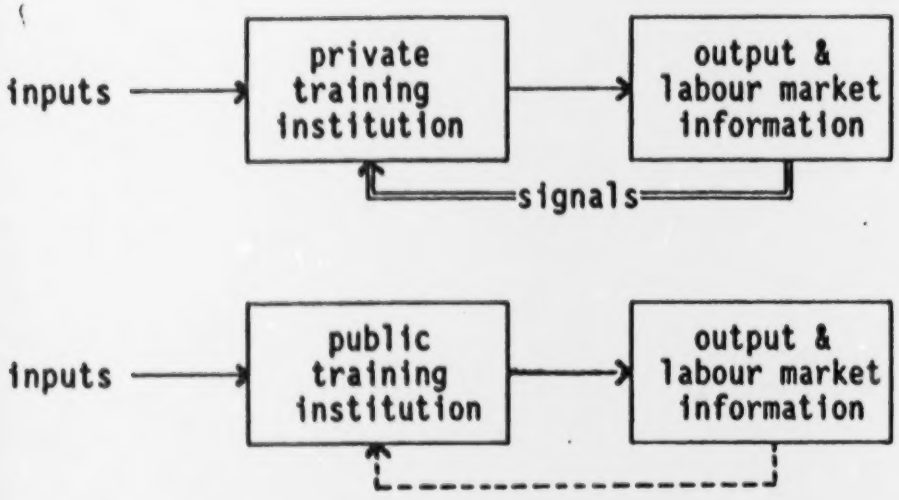

THE INVISIBLE
TRAINING WORLD
2
1
PUBLIC
TRAINING
3

Figure 5


inputs
private training institution
output & labour market information
signals
inputs
public training institution
output & labour market information